



Guide for

## Information Security Analysts in California

**May also be called:** Computer Security Specialists; Data Security Administrators; Information Security Engineers; Information Security Officers; Information Security Specialists; Information Systems Security Analysts; and Information Technology Security Analysts

### What Would I Do?

Many organizations store all of their information solely on computers, so Information Security Analysts are needed to keep that data safe. Information such as personnel files, client lists, bank account records, and government data needs to be protected from cyberattack.

Information Security Analysts plan, develop, implement, upgrade, or monitor security measures to protect computer networks and systems. They must comply with laws, regulations, and information security requirements to ensure that appropriate security controls are in place that will safeguard digital files and vital electronic infrastructure. They assess data exposure risks and validate that security systems are working properly. They teach users about computer security and install security software. They respond to computer security breaches and viruses; therefore, it is vital that they stay current on virus trends and ensure virus protection is in place.

They may plan for situations where power outages caused by severe weather or other disaster leave security vulnerable. They will also need to ensure operations are maintained during such an event by regularly copying and transferring data to an offsite location. In some cases, they gather data and evidence to be used in prosecuting cybercrime. As cyberattacks have become more sophisticated, the responsibilities of Information Security Analysts have increased.

### Tools and Technology

Information Security Analysts use a variety of tools and technology in their work. In addition to computers, they use network and protocol analyzers. They also use authentication server, network monitoring, network security or virtual private network (VPN) management and equipment, operating system, and transaction security and virus protection software.

### Important Tasks and Related Skills

Each task below is matched to a sample skill required to carry out the task.

| Task   | Skill Used in this Task |
|--|-------------------------|
| Encrypt data transmissions and erect firewalls to conceal confidential information as it is being transmitted and to keep out tainted digital transfers. | Telecommunications      |
| Develop plans to safeguard computer files against accidental or  | Critical Thinking       |

|   |                           |
|---|---------------------------|
| unauthorized modification, destruction, or disclosure and to meet emergency data processing needs.  |                           |
| Review violations of computer security procedures and discuss procedures with violators to ensure violations are not repeated.                  | Written Comprehension     |
| Monitor use of data files and regulate access to safeguard information in computer files.   | Inductive Reasoning       |
| Monitor current reports of computer viruses to determine when to update virus protection systems.   | Problem Sensitivity       |
| Modify computer security files to incorporate new software, correct errors, or change individual access status.                                 | Complex Problem Solving   |
| Perform risk assessments and execute tests of data processing system to ensure functioning of data processing activities and security measures. | Computers and Electronics |
| Confer with users to discuss issues such as computer data access needs, security violations, and programming changes.                           | Oral Comprehension        |
| Train users and promote security awareness to ensure system security and to improve server and network efficiency.                              | Speaking                  |

Source: U.S. Department of Labor [Occupational Information Network \(O\\*NET\)](http://online.onetcenter.org) at online.onetcenter.org.

### **Working Conditions**

Information Security Analysts usually work in offices or laboratories in comfortable surroundings. They work about 40 hours a week, but may be required to work some evenings or weekends to meet deadlines or solve specific problems. They may also need to be on call outside of normal business hours in case of an emergency at their organization.

This type of work may be stressful for some as they must be able to work well under pressure. Following proper precautions, they can minimize eyestrain, back discomfort, and hand and wrist problems from using a computer for long periods of time.

Although most Information Security Analysts are not represented by unions, unionization varies by industry. Public sector employees may join the Service Employees International Union.

### **Will This Job Fit Me?**

The job of Information Security Analyst may appeal to those who enjoy activities that involve following set procedures and routines. This occupation involves working with data and details more than with ideas. Individuals who value job security and good working conditions may enjoy this occupation.

Information Security Analysts may work independently or as part of a team. They must have excellent technical, research, and writing skills as well as the ability to handle multiple projects. They must be able to communicate with both technical and non-technical staff. Sound analytical and problem solving skills as well as good attention to detail are essential. In addition, they need ingenuity and the ability to take initiative.

### **What Wages and Benefits Can I Expect?**

#### **Wages**

Information Security Analysts is a new occupation and there is no average wage information available. However, wages are available for the larger occupational cluster of Information Security Analysts, Web Developers, and Computer Network Architects. The median wage in 2011 for Information Security

Analysts, Web Developers, and Computer Network Architects in California was \$84,362 annually, or \$40.56 hourly. The median is the point at which half of the workers earn more and half earn less.

| Annual Wages for 2011 | Low (25th percentile) | Median (50th percentile) | High (75th percentile) |
|-----------------------|-----------------------|--------------------------|------------------------|
| California            | \$65,479              | \$84,362                 | \$110,535              |

Source: EDD/LMID [Occupational Employment Statistics Survey, 2011](http://www.labormarketinfo.edd.ca.gov/?PgID=1009) at [www.labormarketinfo.edd.ca.gov/?PgID=1009](http://www.labormarketinfo.edd.ca.gov/?PgID=1009). Wages do not reflect self-employment. Wages displayed are for Information Security Analysts, Web Developers, and Computer Network Architects.

### Benefits

Information Security Analysts generally receive medical and dental insurance, vacation, sick leave, and retirement plans from their employers.

### What is the Job Outlook?

The number of Information Security Analysts in California is unknown at this time since this is a new occupation and there are no employment projections data available. Information Security Analysts is a fast growing occupation in California. It should be in high demand over the next decade as information security needs rise due to increasingly sophisticated cyberattacks. New job growth is expected in the federal government to protect critical information technology systems as well as in the healthcare industry to safeguard the protection of patients' privacy and personal data with the use of electronic records. Because of the rapidly changing technology, workers who are capable of implementing new technologies will find the most opportunities.

### How Do I Qualify?

#### Education, Training, and Other Requirements

The level of education and type of training varies by employer. A bachelor's degree in computer science or a related field is required for most jobs. Some employers may prefer applicants with a Master of Business Administration (MBA) in Information Systems. Most employers require several years of prior information technology or security experience as relevant work experience is very important in this occupation. Many positions require that the candidate be able to obtain a security clearance. Those who have a background in the industry should have an advantage.

#### Early Career Planning

High school students interested in this kind of work should take classes in mathematics, computer science, information technology, and language arts. Other helpful classes may include business, physical science, and engineering technology. Training programs are also available through Regional Occupational Programs (ROP) in computer forensics, computer security, network security, and security issues for information technology professionals. To find an ROP program near you, go to the California Association of Regional Occupational Centers and Programs website at [www.carocp.org/carocps.html](http://www.carocp.org/carocps.html).

#### Continuing Education

With rapidly changing technology come new security risks, making it necessary for Information Security Analysts to keep current on new security technology as well as the latest attack methods. Employers, hardware and software vendors, colleges and universities, and private training institutions offer continuing education. Attending cybersecurity conferences may be useful to hear from other information security professionals who have knowledge of new types of attacks.

## Certification

Professional certification has become the industry standard. Many different certification programs are available through product vendors, computer associations, and other training institutions. Employers prefer relevant security certification, such as a Certified Information Systems Security Professional (CISSP) credential. In addition, many product vendors require those who work with their products to be certified. For more information, go to the U.S. Department of Labor's Career InfoNet website at [www.acinet.org](http://www.acinet.org) and scroll down to "Career Tools." Select "Certification Finder" at [www.acinet.org/certifications\\_new/default.aspx](http://www.acinet.org/certifications_new/default.aspx) and follow the instructions to locate certification programs.

## Where Can I Find Training?

There are two ways to search for training information at [www.labormarketinfo.edd.ca.gov/?Pageid=1013](http://www.labormarketinfo.edd.ca.gov/?Pageid=1013):

- [Search by Field of Study](#) to find what programs are available and what schools offer those programs. You may use keywords such as: Information Systems Security, Information Technology, Systems Analysis, and Systems Networking.
- [Search by Training Provider](#) to find schools by name, type of school, or location.

Contact the schools you are interested in to learn about the classes available, tuition and fees, and any prerequisite course work.

## Where Would I Work?

Information Security Analysts work in a variety of industries. However, since it is a new occupational title, the largest industries employing the cluster of Information Security Analysts, Web Developers, and Computer Network Architects, are as follows:

| Industry Title                           |
|--|
| Computer Systems Design and Rel Services |
| Management & Technical Consulting Svc    |
| Management of Companies and Enterprise   |
| Other Information Services               |
| Local Government                         |

Source: [EDD/LMID Staffing Patterns](#) at [www.labormarketinfo.edd.ca.gov/?Pageid=1012](http://www.labormarketinfo.edd.ca.gov/?Pageid=1012).

## Finding a Job

Networking is important in this occupation, since many Information Security Analysts find work through referrals. Jobs can also be found through direct application to employers, newspaper classified advertisements, online job boards, and professional organizations. **Online job opening systems** include JobCentral at [www.jobcentral.com](http://www.jobcentral.com) and CalJOBS<sup>SM</sup> at [www.caljobs.ca.gov](http://www.caljobs.ca.gov).

To find your nearest One-Stop Career Center, go to [Service Locator](#) at [www.servicelocator.org](http://www.servicelocator.org). View the [helpful job search tips](#) at [www.labormarketinfo.edd.ca.gov/occguides/JobSearchTips.pdf](http://www.labormarketinfo.edd.ca.gov/occguides/JobSearchTips.pdf) for more resources (requires [Adobe Reader](#)).

## Yellow Page Headings

You can focus your local job search by checking employers listed online or in your local telephone directory. Below are some suggested headings where you might find employers of Information Security Analysts.

- Computer System Designers & Consultants
- Financial Institutions

- Government Offices
- Internet Access Providers Wireless
- Internet Service Providers (ISP)
- Management Consultants
- Network Design & Systems
- Wireless Communication

### **Find Possible Employers**

To locate a list of employers in your area, use “Find Employers” on the LaborMarketInfo website at [www.labormarketinfo.edd.ca.gov/aspdotnet/databrowsing/empMain.aspx?menuChoice=emp](http://www.labormarketinfo.edd.ca.gov/aspdotnet/databrowsing/empMain.aspx?menuChoice=emp).

- Select the search for employers by occupation.
- Select a geographic area.
- Search for an occupation by keyword, occupation, or category.
- Select one of the top industries that employ the occupation.  
This will give you a list of employers in that industry in your area.
- Select “View Filter Selections” to limit your list to specific cities or employer size.
- Select an employer for the street address, telephone number, size of business, website, etc.
- Contact the employer for possible employment.

### ***Where Could This Job Lead?***

Information Security Analysts may advance into lead or supervisory positions. They may also move into other computer positions, such as computer systems analyst. Those with significant expertise may find opportunities as independent consultants.

### ***Related Occupations***

Below is a list of occupations related to Information Systems Analysts.

- Computer Network Architects (SOC 15-1143)
- Computer Programmers (SOC 15-1131)
- Computer Science Teachers, Postsecondary (SOC 25-1021)
- Computer Systems Analysts (SOC 15-1121)
- Database Administrators (SOC 15-1141)
- Network and Computer Systems Administrators (SOC 15-1142)
- Web Developers (SOC 15-1134)

### ***Other Sources***

- Association for Computing Machinery (ACM)  
[www.acm.org](http://www.acm.org)
- Computing Technology Industry Association, Inc.  
[www.comptia.org](http://www.comptia.org)
- Institute of Electrical and Electronics Engineers (IEEE) Computer Society  
[www.computer.org](http://www.computer.org)
- Institute for the Certification of Computing Professionals (ICCP)  
[www.iccp.org](http://www.iccp.org)
- National Workflow Center for Emerging Technologies  
[www.nwcet.org](http://www.nwcet.org)
- The Computing Research Association  
[www.cra.org](http://www.cra.org)

These links are provided for your convenience and do not constitute an endorsement by the EDD.

***For the Career Professional***

The following codes are provided to assist counselors, job placement workers, or other career professionals.

| <b>System</b>   | <b>Code</b> |
|---|-------------|
| SOC – <a href="http://www.bls.gov/soc">Standard Occupational Classification</a> at <a href="http://www.bls.gov/soc">www.bls.gov/soc</a>   | 15-1122     |
| O*NET – <a href="http://online.onetcenter.org">Occupational Information Network</a> at <a href="http://online.onetcenter.org">online.onetcenter.org</a>   |             |
| Information Security Analyst  | 15-1122     |
| <a href="http://online.onetcenter.org/find/InterestCodes(RIASEC)">Interest Codes (RIASEC)</a> at <a href="http://online.onetcenter.org/find/descriptor/browse/Interests/#cur">online.onetcenter.org/find/descriptor/browse/Interests/#cur</a> | CIR         |

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